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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/639,144

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Chun Chian Lu

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EXAMINER

ZHENG, EVA Y

ART UNIT

PAPER NUMBER

2611

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/639,144

Applicant(s)

LU, CHUN CHIAN

Examiner

Eva Yi Zheng

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because in Fig. 5 number 14 should be connected to the correct block in the drawing. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 18-20 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

Regarding to claim 18, the omitted structural cooperative relationships are: a tracking device vs. an approximating device and a signal-separating device.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 6-12, and 15-20 are rejected under 35 U.S.C. 102(e) as being unpatentable by Choi et al (US 2003/0202568).

a) Regarding to claim 1, Choi et al disclose a signal processing method comprising:  
receiving a first signal for wireless communication (received signal directly output to block 300 in Fig. 1);

obtaining an approximate function of pulse shaping in the first signal ([0021]);

separating the approximate function of pulse shaping from the first signal to obtain a second signal (subtractor 300 in Fig. 1 and [0025]); and

processing the second signal to obtain a user signal (block 20 in Fig. 1 and [0026]).

- b) Regarding to claims 2 and 11, Choi et al disclose wherein conducting a single-user detection (as shown in Fig. 1); and obtaining an amplitude estimate and a symbol delay for a user in a frame (block 112 and [0023]; it is well known that despreaders estimate delay of the fingers).
- c) Regarding to claims 3 and 12, Choi et al disclose wherein the second signal has insignificant or no pulse shaping effects ([0026]; interference-canceled).
- d) Regarding to claims 6 and 15, Choi et al disclose wherein separating the approximate of the non-channel function from the first signal comprises applying at least one order of perturbation to adjust the approximate of the non-channel function of pulse shaping (inherent as pulse shaping filter [0021]).
- e) Regarding to claims 8 and 16, Choi et al disclose wherein separating the approximate of the non-channel function from the first signal comprises separating an approximately known non-channel function from a received function of a time-varying channel function (as shown in Fig. 1; CDMA system produce signals have time-varying amplitude and phase).
- f) Regarding to claim 9, Choi et al disclose a signal processing method comprising:
  - receiving a first signal for wireless communication (received signal directly output to block 300 in Fig. 1);
  - obtaining an approximate of a non-channel function in the first signal ([0021]);

separating the approximate of the non-channel function from the first signal to obtain a second signal that includes a time-varying channel function (subtractor 300 in Fig. 1 and [0025]; It is well known and common knowledge that CDMA system produce signals have time-varying amplitude and phase); and

processing the second signal to obtain a user signal (block 20 in Fig. 1 and [0026]).

g) Regarding to claim 18, Choi et al disclose a signal processing system, comprising:

a receiver for receiving a first signal for wireless communication (received signal directly output to block 300 in Fig. 1);

a tracking device for obtaining an amplitude estimate and a symbol delay for a user (112 in Fig. 1 and [0023]);

an approximating device for providing an approximate of a non-channel function in the first signal ([0021]); and

a signal-separating device for separating the approximate of the non-channel function from the first signal to obtain a second signal that includes a time-varying channel function (subtractor 300 in Fig. 1 and [0025]; It is well known and common knowledge that CDMA system produce signals have time-varying amplitude and phase).

h) Regarding to claim 19, Choi et al disclose wherein the non-channel function comprises a function selected from a linear and continuous transformation function, a pulse-shaping function, and a low-pass filtering ([0021]).

i) Regarding to claims 7,17 and 20, Choi et al disclose wherein separating the approximate of non-channel function from the first signal comprises at least one of the following process:

applying at least one equalization; and

applying at least one order of perturbation to adjust the approximate of the non-channel function (inherent as pulse shaping filter [0021]).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4, 5, 13, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choi et al (US 2003/0202568) in view of Zeira (US 2004/0223538).

a) Regarding to claims 4, 5, 13 and 14, Choi et al disclose all the subject matters above except for the specific teaching of equalization and decision feedback equalization.

However, Zeira, in the same field of endeavor, disclose equalizer/decision feedback equalizer (34 in Fig. 3) in a successive interference cancellation receiver. By doing so, accurately detect symbols and remove interference symbols in CDMA system.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Y Zheng whose telephone number is 571-272-3049. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eva Yi Zheng  
Examiner  
Art Unit 2611

November 9, 2006



CHIEH M. FAN  
SUPERVISORY PATENT EXAMINER